

REMARKS

The above amendments and these remarks are responsive to the final office action issued on February 24, 2006. An appeal was filed from the final office action. The Board of Patent Appeals and Interferences (hereinafter the Appeal Board) affirmed the rejections in the office action. An appropriate RCE is filed concurrently herewith to reopen prosecution.

The Office Action rejected claims 1-8 and 18-20 under 35 U.S.C. §102(e) as being anticipated by Takahashi et al. (U.S. Publication No. 2004/0183385). Claims 1-10 and 18-20 were rejected under 35 U.S.C. §102(b) as being anticipated Gründl et al. (DE 10112799). Claims 11 and 14-17 stood rejected under 35 U.S.C. §103(a) as being unpatentable over Ishiyama (US Patent No. 5,632,351) in view of Gründl. Claim 12 was rejected under 35 U.S.C. §103(a) as being unpatentable over Ishiyama in view of Gründl further in view of Kim et al. (U.S. Publication No. 2001/0054730). Claim 13 was rejected under 35 U.S.C. §103(a) as being unpatentable over Gründl in view of Jackson et al. (U.S. Patent No. 2,942,165). The Examiner objected to claim 10 for lacking proper antecedent basis. The objection to claim 10 was previously addressed in a response after final filed on May 24, 2006.

By this Response, claim 1 is amended and claim 21 is newly added. Claims 18 and 20 are cancelled without prejudice. No new matter is added. Claims 1-17, 19 and 21 are now active for examination.

Taking the Appeal Board's decision and comments into consideration, claim 1, after the amendment, includes additional descriptions clarifying that a power semiconductor module is mounted on the cooling surface of at least one of the coolers and extends in the radial direction along with the cooling surface.

It is submitted that the claim rejections are overcome in view of the amendments and/or remarks presented herein. Favorable reconsideration of the application is respectfully requested.

Specific issues raised by the Office Action are addressed below.

The Anticipation Rejection Based on Takahashi Was Withdrawn

The Examiner's Answer, mailed November 27, 2006, withdrew the anticipation rejection of claims 1-8 and 18-20 based on Takahashi.

The Rejection of Claims 18 and 20 Is Moot

By this Response, claims 18 and 20 are cancelled without prejudice. Therefore, the rejection of claims 18 and 20 is moot.

The Anticipation Rejection Based on Gründl Is Overcome

Claims 1-10 and 19 were rejected as being anticipated by Gründl. The anticipation rejection is respectfully overcome because Gründl cannot support a *prima facie* case of anticipation.

In the Examiner's Answer, the Examiner correctly acknowledged, which the Appeal Board confirmed, that Gründl does not specifically describe a power semiconductor module which is mounted on a cooling surface of a cooler and extends in the radial direction along with the cooling surface. The Appeal Board ruled that if Applicants intend to rely on such difference to differentiate claim 1 from Gründl, specific descriptions related to such features. See Examiner's Answer 9 and Page 7, lines 15-22 of the Appeal Board's Decision.

By this Response, claim 1 is amended to specifically specify that a power semiconductor module is mounted on a cooling surface of a cooler and extends in the radial direction along with the cooling surface, which the Examiner and the Board confirmed to be unavailable from Gründl.

After the amendment, claim 1 describes a power converter arranged in series with a motor to form a unitary structure through which an output shaft extends, and includes a plurality of coolers. Each of the coolers extends along a radial direction with respect to an output shaft so

as to be perpendicular to the output shaft, and has a cooling surface defined by a direction parallel to the output shaft and the radial direction. A power semiconductor module is mounted on the cooling surface of at least one of the plurality of coolers and extending in the radial direction along with the cooling surface of the cooler.

Although Gründl describes a fluid cooled electric machine having coaxial cooling channels 32, Gründl's design and structure are different from the claimed power converter and do not meet the claimed limitations. As illustrated in Fig. 1 of this application, power semiconductor modules 71A-71D, 72A-72D and 73A-73D are located on cooler surfaces of coolers 11-16. As described in claim 1, these cooler surfaces are defined by (1) a direction parallel to the output shaft and (2) the radial direction. A power semiconductor module is mounted on the cooling surface of at least one of the plurality of coolers and extend in the radial direction along with the cooling surface of the cooler.

In contrast, While the coolers in Gründl cooling surface might include incidental cooling portions that purportedly extend in a radial direction, the power semiconductor module 46 in Gründl does not extend in the radial direction with such cooling surface. As shown in Fig. 1 of Gründl, Gründl's power semiconductor module 46 is mounted on a cooling surface that is defined by (1) a direction parallel to the output shaft and (2) a circumferential direction, not the radial direction. None of the power semiconductor modules 46 is mounted on the purportedly radially extended cooling surfaces. Neither does any power semiconductor modules 46 extend in a radial direction.

Accordingly, Gründl fails to disclose that each of the coolers extends along a radial direction with respect to an output shaft so as to be perpendicular to the output shaft, and has a cooling surface defined by a direction parallel to the output shaft and the radial direction; and that a power semiconductor module is mounted on the cooling surface of at least one of the

plurality of coolers and extends in the radial direction along with the cooling surface of the cooler, as described in claim 1.

Since Gründl fails to disclose every limitation of claim 1, Gründl cannot support a *prima facie* case of anticipation. Accordingly, the anticipation rejection based on Gründl is overcome. Favorable reconsideration of claim 1 is respectfully requested.

Claims 2-10 and 19 depend on claim 1 and incorporate every limitation thereof. Therefore, claims 2-10 and 19 are patentable over Gründl by virtue of their dependencies on claim 1. Favorable reconsideration of claim 2-10 and 19 is respectfully requested.

The Obviousness Rejections Are Overcome

Claims 11 and 14-17, directly or indirectly, depend on claim 1 and incorporate every limitation thereof. The Office Action rejected claims 11 and 14-17 as being unpatentable over Ishiyama in view of Gründl. It is submitted that the cited documents cannot support a *prima facie* case of obviousness.

As discussed earlier relative to claim 1, Gründl fails to meet every feature described in claim 1. The other cited document, Ishiyama, as acknowledged by the Examiner admitted that Ishiyama was only relied upon for its purported descriptions related to smoothing capacitors. See Examiner's Answer 9 and page 12, lines 3-4 of the Appeal Board's Decision. Ishiyama, however, also fails to disclose "a plurality of coolers each of which extends along a radial direction with respect to an output shaft so as to be perpendicular to the output shaft and having a cooling surface defined by a direction parallel to the output shaft and the radial direction; and a power semiconductor module mounted on the cooling surface of at least one of the plurality of coolers and extending in the radial direction along with the cooling surface of the cooler, to supply electric power to a motor," as required by claim 1 and inherited by claims 11 and 14-17.

Thus, Ishiyama, even if combined with Gründl, does not meet every limitation of claim 1, the features of which are incorporated into claims 11 and 14-17 by virtue of their dependencies. Accordingly, claims 11 and 14-17 are patentable over the combination of Ishiyama and Gründl. Favorable reconsideration of claims 11 and 14-17 is respectfully requested.

Claim 12 indirectly depends on claim 1 and was rejected as being unpatentable over Ishiyama in view of Gründl and further in view of Kim. As discussed earlier, both Ishiyama and Gründl fail to teach every limitation of claim 1, the base claim on which claim 12 depends. Kim does not alleviate these deficiencies. Thus, Ishiyama and Gründl, even if modified by Kim, still fail to disclose every limitation of claim 1, all the features of which are incorporated into claim 12 by virtue of their dependencies from claim 1. Therefore, claim 12 is patentable. Favorable reconsideration of claim 12 is respectfully requested.

Claim 13 depends on claim 1 and was rejected as being unpatentable over Gründl in view of Jackson. As discussed earlier relative to claim 1, Gründl fails to meet every feature described in claim 1. The other cited document, Jackson, also fails to alleviate the deficiencies of Gründl. Thus, Gründl, even if modified by Jackson, still fails to disclose every limitation of claim 1, all the features of which are incorporated into claim 13 by virtue of their dependencies from claim 1. Therefore, claim 13 is patentable. Favorable reconsideration of claim 13 is respectfully requested.

New Claim 21 Is Patentable

New claim 21 depends on claim 1 and further describes that the power converter and the motor are combined coaxially in series with each other, the radial direction is a direction perpendicularly extending from the output shaft, and the cooling surface is defined by a direction parallel to the output shaft and a direction parallel to the extending direction.

As discussed earlier, the documents of record, either combined or alone, fail to meet every limitation of claim 1, the base claim on which claim 21 depends upon. Therefore, claim 21 is patentable by virtue of its dependency from claim 1 as well as based on its own merits. Favorable consideration of claim 1 is respectfully requested.

CONCLUSION

For the reasons given above, Applicants believe that this application is in condition for allowance and request the Examiner give the application favorable reconsideration and permit it to issue as a patent. If the Examiner believes that the application can be put in even better condition for allowance, the Examiner is invited to contact Applicants' representatives listed below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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